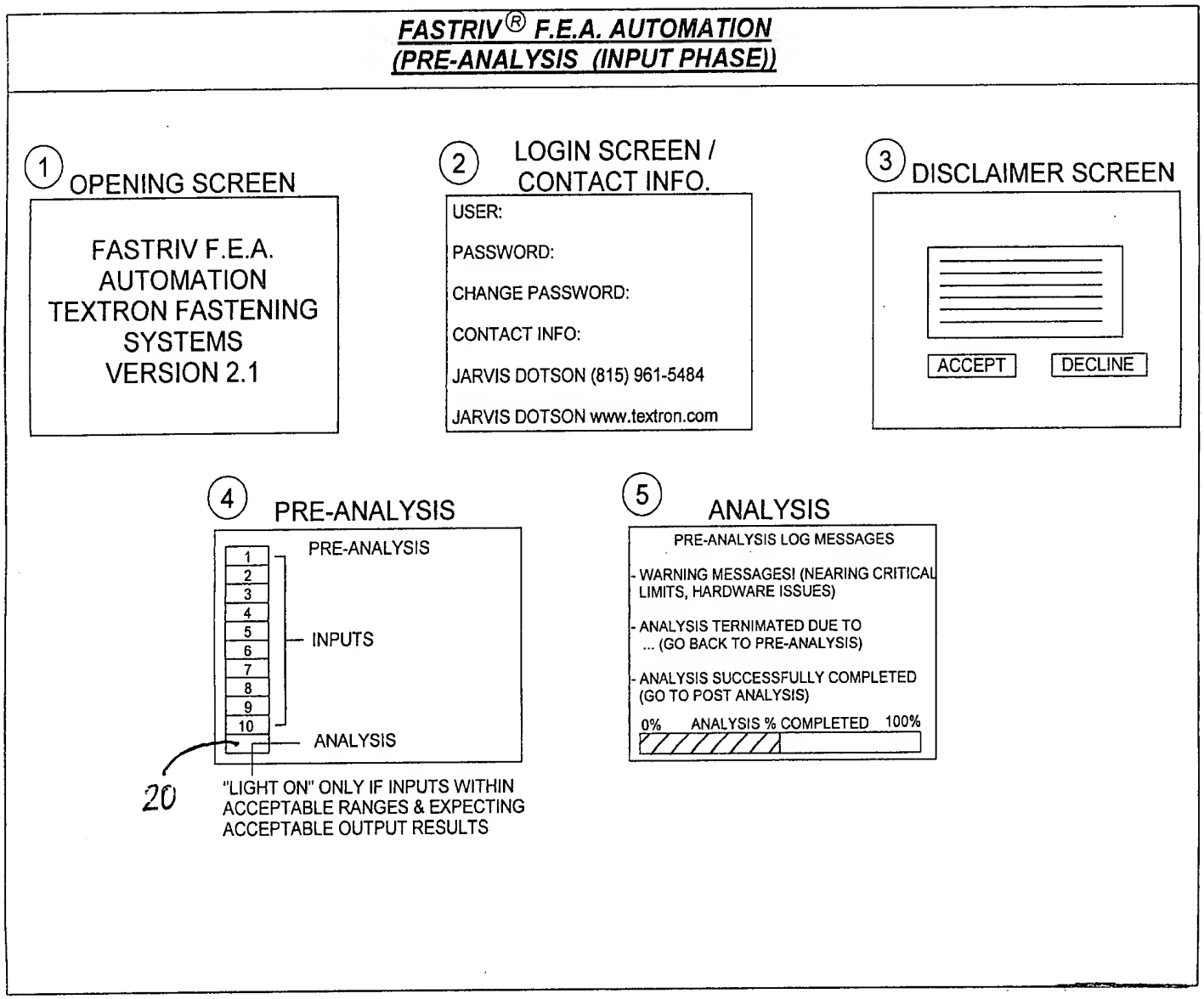
FASTRIV® F.E.A. AUTOMATION
(PRE-ANALYSIS (INPUT PHASE))
1 OPENING SCREEN
FASTRIV F.E.A.
AUTOMATION
TEXTRON FASTENING
SYSTEMS
VERSION 2.1
2 LOGIN SCREEN / CONTACT INFO.
USER:
PASSWORD:
CHANGE PASSWORD:
CONTACT INFO:
JARVIS DOTSON (815) 961-5484
JARVIS DOTSON www.textron.com
3 DISCLAIMER SCREEN
ACCEPT
DECLINE
4 PRE-ANALYSIS
PRE-ANALYSIS
1
2
3
4
5
6
7
8
9
10
INPUTS
ANALYSIS
20
"LIGHT ON" ONLY IF INPUTS WITHIN ACCEPTABLE RANGES & EXPECTING ACCEPTABLE OUTPUT RESULTS
5 ANALYSIS
PRE-ANALYSIS LOG MESSAGES
- WARNING MESSAGES! (NEARING CRITICAL LIMITS, HARDWARE ISSUES)
- ANALYSIS TERNIMATED DUE TO ... (GO BACK TO PRE-ANALYSIS)
- ANALYSIS SUCCESSFULLY COMPLETED (GO TO POST ANALYSIS)
0% ANALYSIS % COMPLETED 100%

FIG. 1

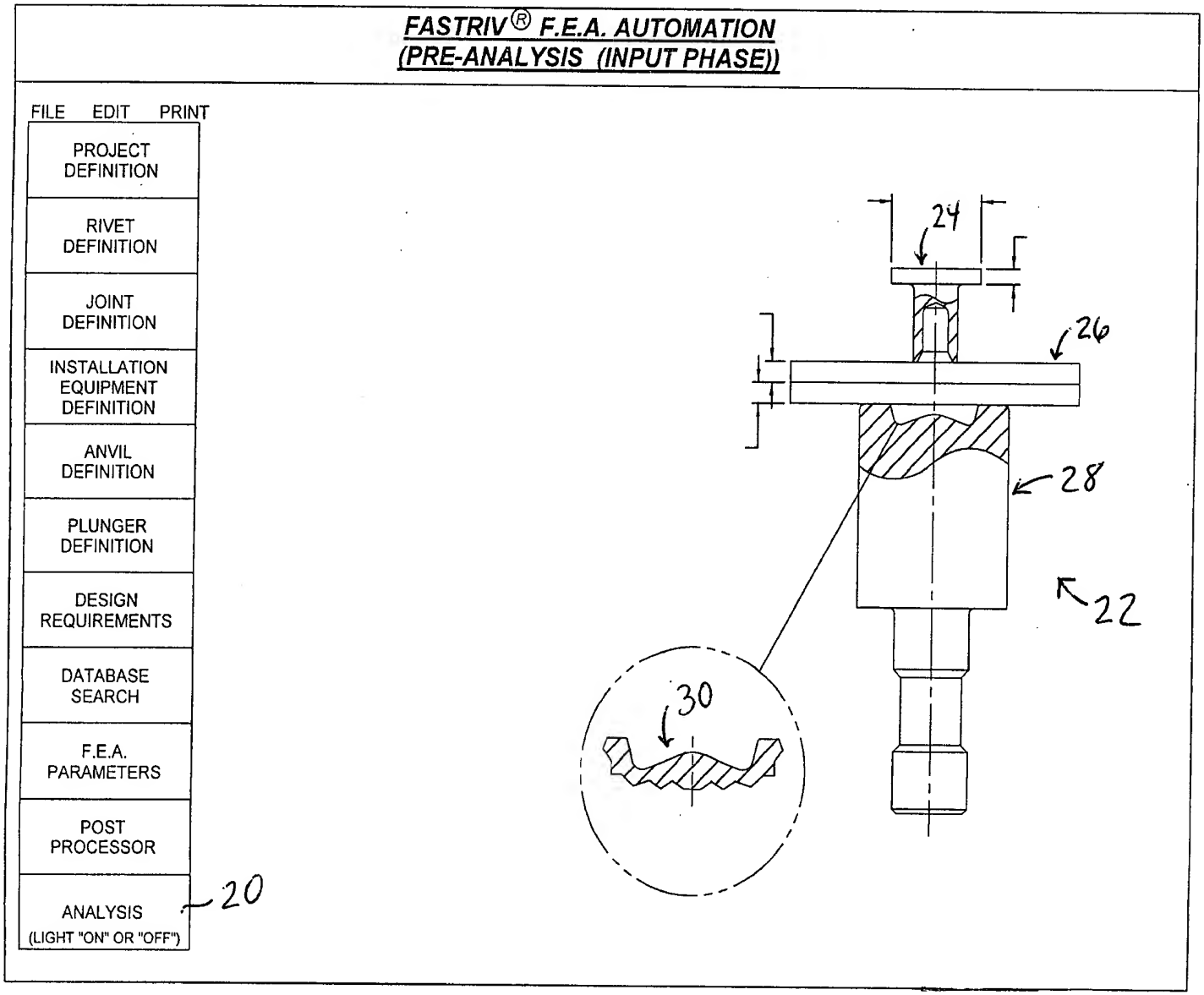

FIG. 2

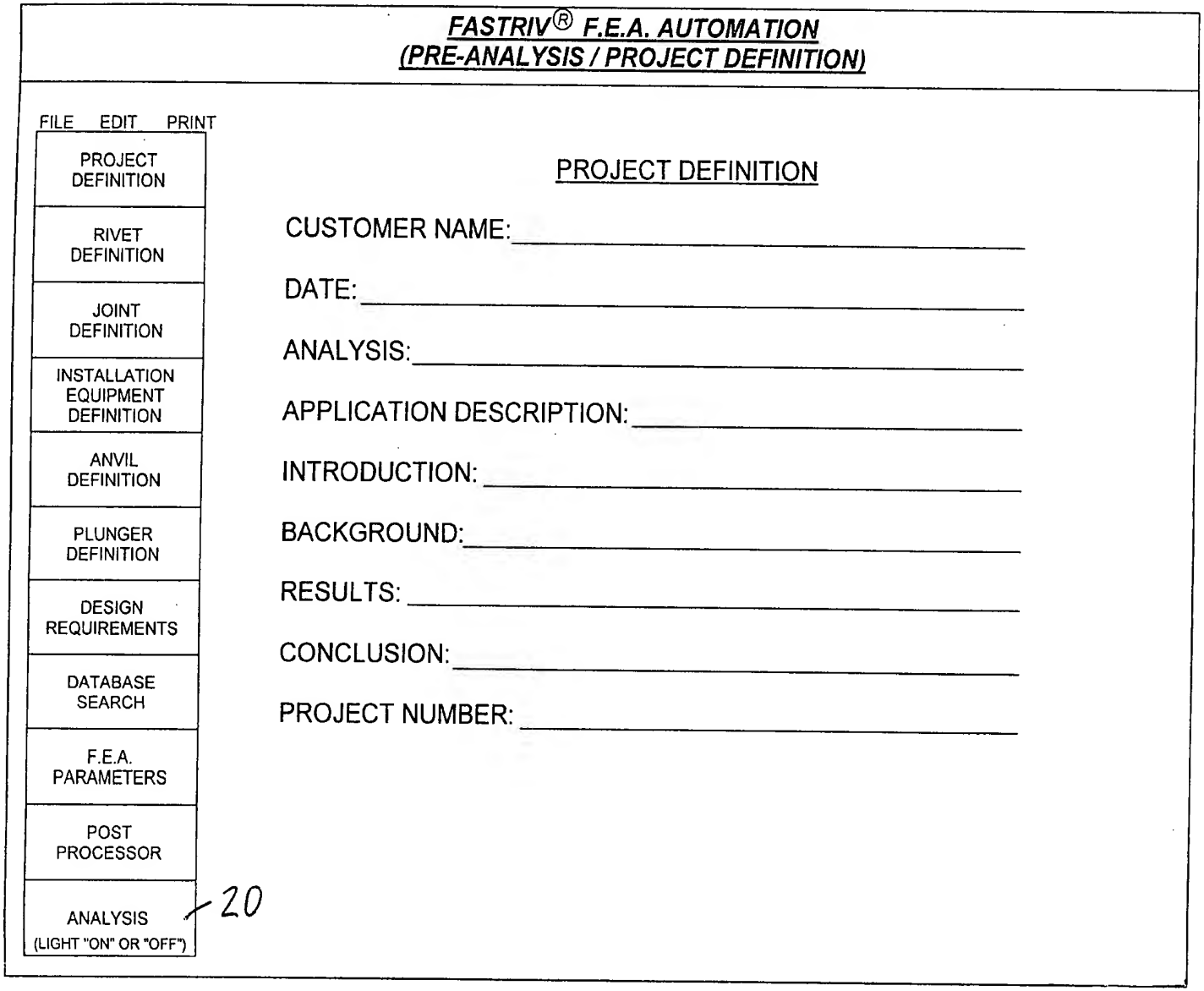
FASTRIV® F.E.A. AUTOMATION
(PRE-ANALYSIS / PROJECT DEFINITION)
FILE EDIT PRINT
PROJECT DEFINITION
RIVET DEFINITION
JOINT DEFINITION
INSTALLATION EQUIPMENT DEFINITION
ANVIL DEFINITION
PLUNGER DEFINITION
DESIGN REQUIREMENTS
DATABASE SEARCH
F.E.A. PARAMETERS
POST PROCESSOR
ANALYSIS
(LIGHT "ON" OR "OFF")
20
PROJECT DEFINITION
CUSTOMER NAME:
DATE:
ANALYSIS:
APPLICATION DESCRIPTION:
INTRODUCTION:
BACKGROUND:
RESULTS:
CONCLUSION:
PROJECT NUMBER:

FIG. 3

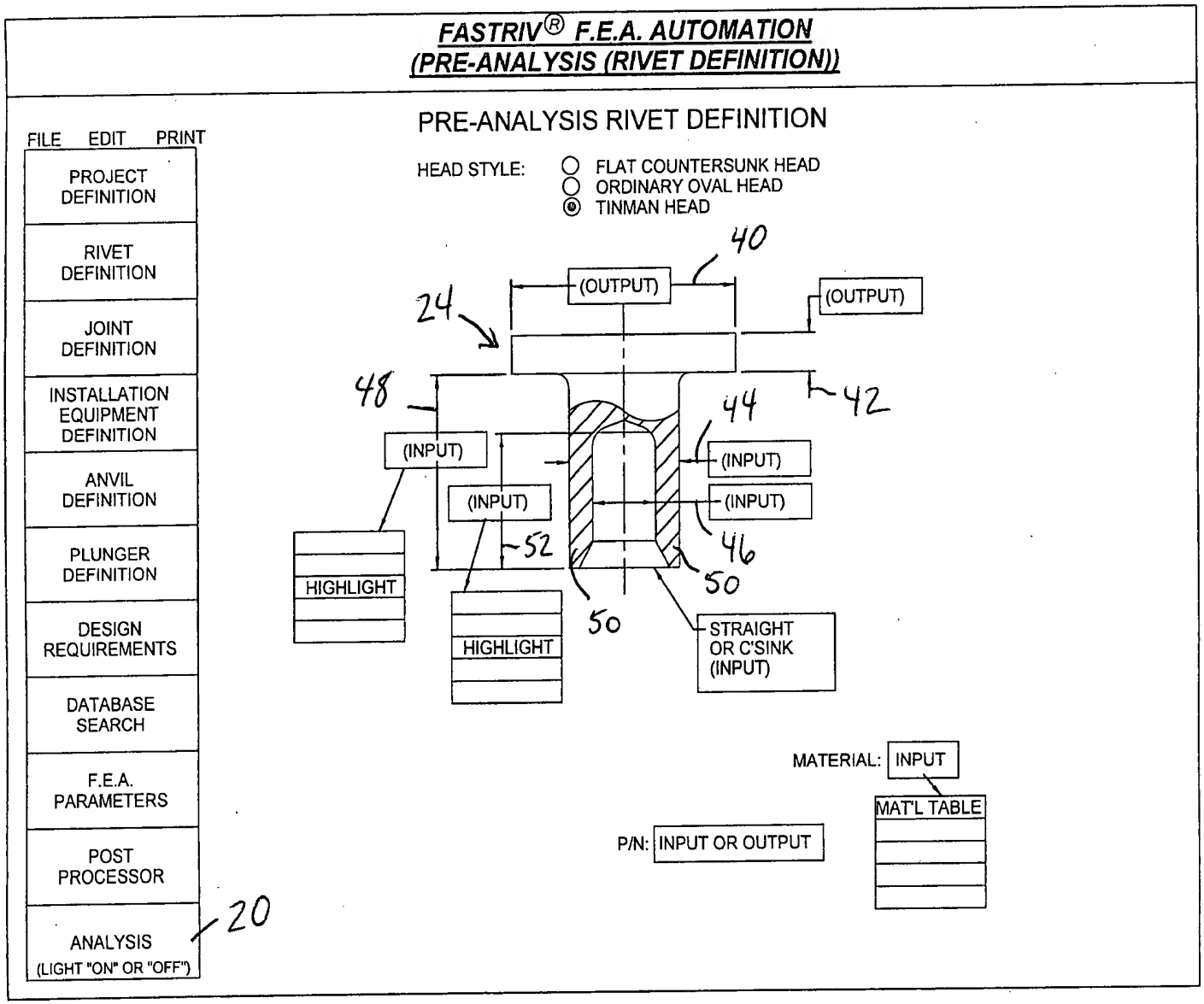
FASTRIV® F.E.A. AUTOMATION
(PRE-ANALYSIS (RIVET DEFINITION))
FILE EDIT PRINT
PROJECT DEFINITION
RIVET DEFINITION
JOINT DEFINITION
INSTALLATION EQUIPMENT DEFINITION
ANVIL DEFINITION
PLUNGER DEFINITION
DESIGN REQUIREMENTS
DATABASE SEARCH
F.E.A. PARAMETERS
POST PROCESSOR
ANALYSIS
(LIGHT "ON" OR "OFF")
20
PRE-ANALYSIS RIVET DEFINITION
HEAD STYLE:
FLAT COUNTERSUNK HEAD
ORDINARY OVAL HEAD
TINMAN HEAD
40
(OUTPUT)
(OUTPUT)
24
48
42
44
(INPUT)
(INPUT)
(INPUT)
(INPUT)
52
46
50
50
HIGHLIGHT
HIGHLIGHT
STRAIGHT OR C'SINK (INPUT)
MATERIAL: INPUT
MAT'L TABLE
P/N: INPUT OR OUTPUT

FIG. 4

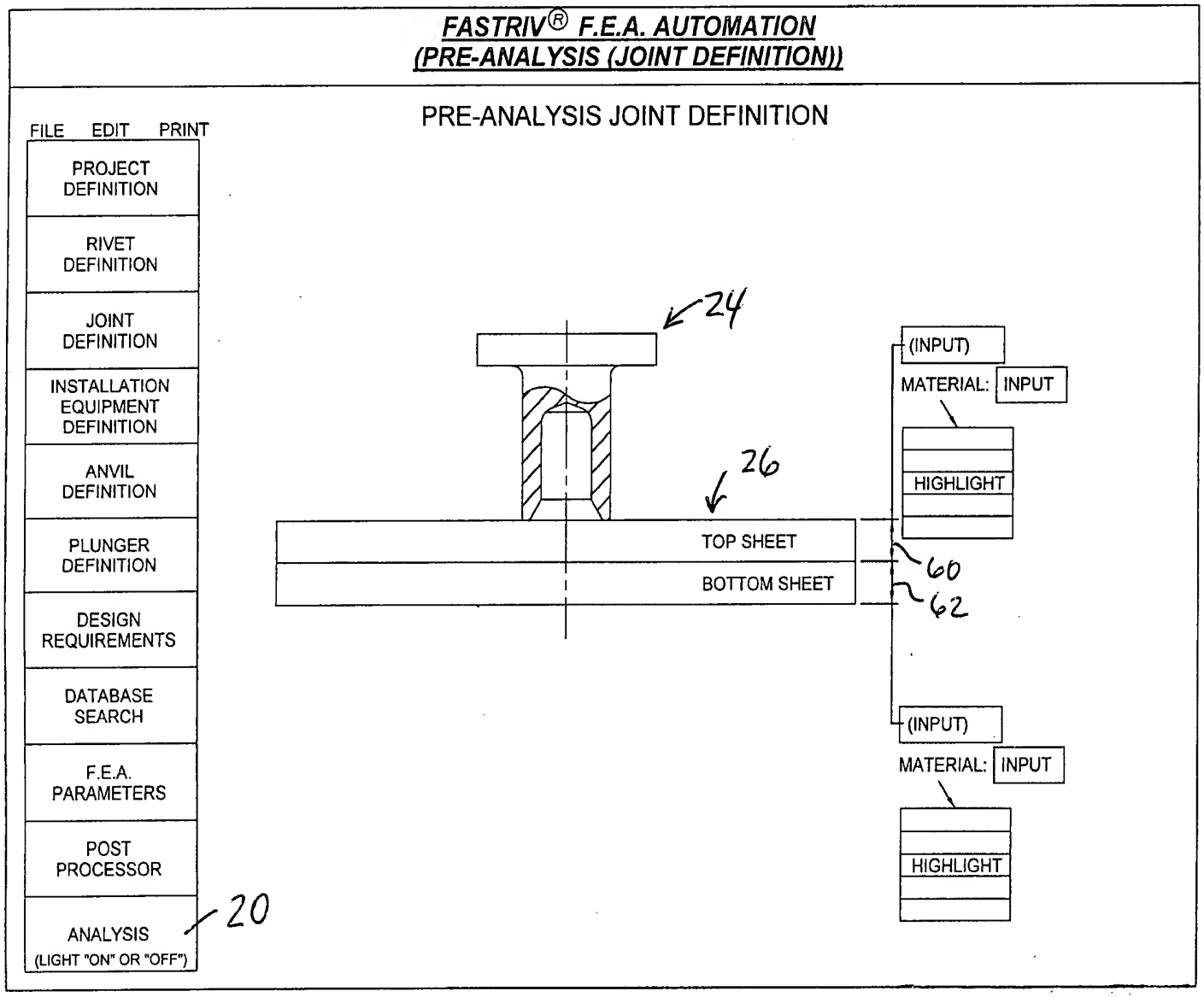
FASTRIV® F.E.A. AUTOMATION
(PRE-ANALYSIS (JOINT DEFINITION))
PRE-ANALYSIS JOINT DEFINITION
FILE EDIT PRINT
PROJECT DEFINITION
RIVET DEFINITION
JOINT DEFINITION
INSTALLATION EQUIPMENT DEFINITION
ANVIL DEFINITION
PLUNGER DEFINITION
DESIGN REQUIREMENTS
DATABASE SEARCH
F.E.A. PARAMETERS
POST PROCESSOR
ANALYSIS
(LIGHT "ON" OR "OFF")
20
24
26
TOP SHEET
BOTTOM SHEET
60
62
(INPUT)
MATERIAL: INPUT
HIGHLIGHT
(INPUT)
MATERIAL: INPUT
HIGHLIGHT

FIG. 5

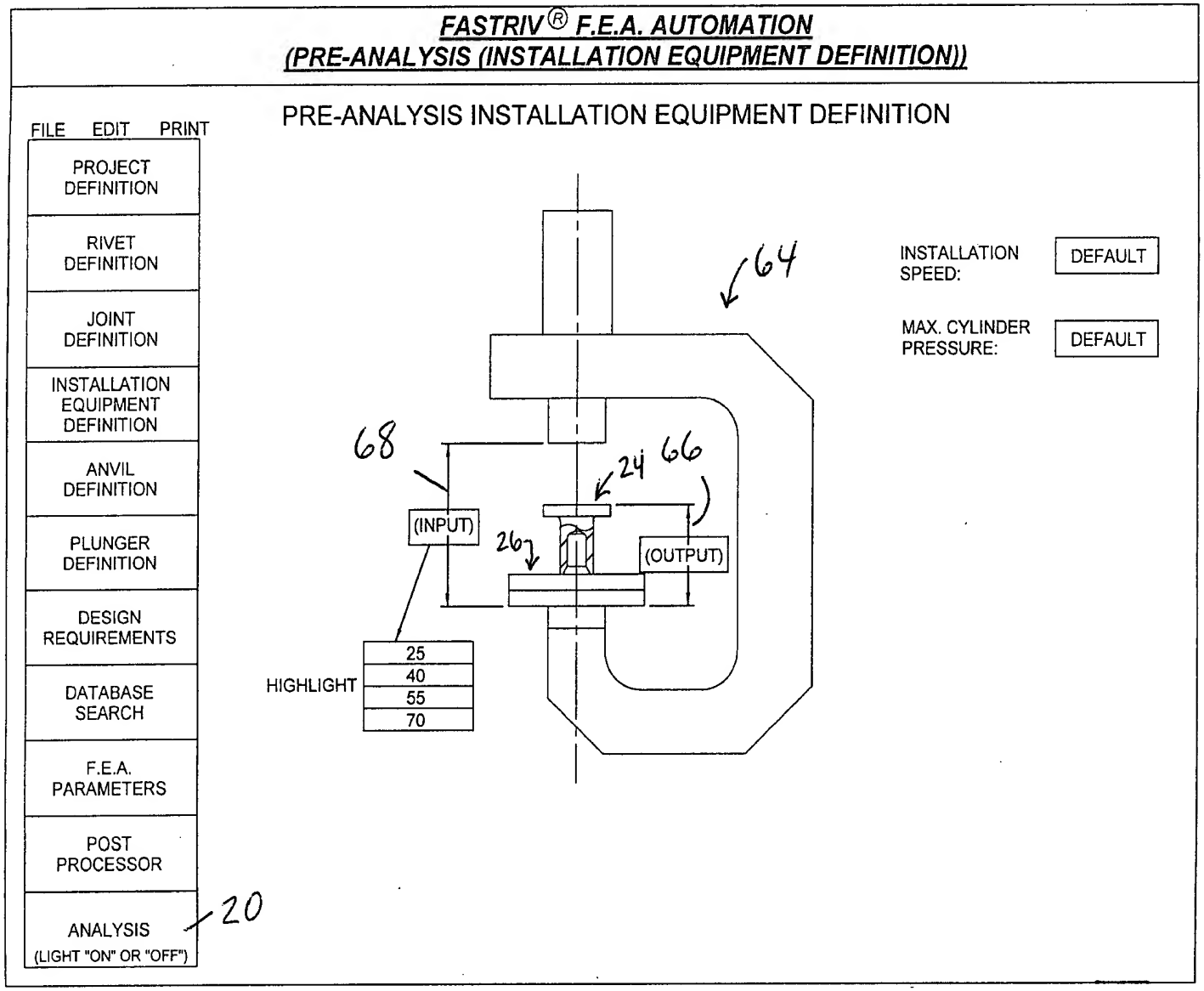
FASTRIV® F.E.A. AUTOMATION
(PRE-ANALYSIS (INSTALLATION EQUIPMENT DEFINITION))
PRE-ANALYSIS INSTALLATION EQUIPMENT DEFINITION
FILE EDIT PRINT
PROJECT DEFINITION
RIVET DEFINITION
JOINT DEFINITION
INSTALLATION EQUIPMENT DEFINITION
ANVIL DEFINITION
PLUNGER DEFINITION
DESIGN REQUIREMENTS
DATABASE SEARCH
F.E.A. PARAMETERS
POST PROCESSOR
ANALYSIS
(LIGHT "ON" OR "OFF")
20
64
68
24
66
26
(INPUT)
(OUTPUT)
HIGHLIGHT
25
40
55
70
INSTALLATION SPEED:
DEFAULT
MAX. CYLINDER PRESSURE:
DEFAULT

FIG. 6

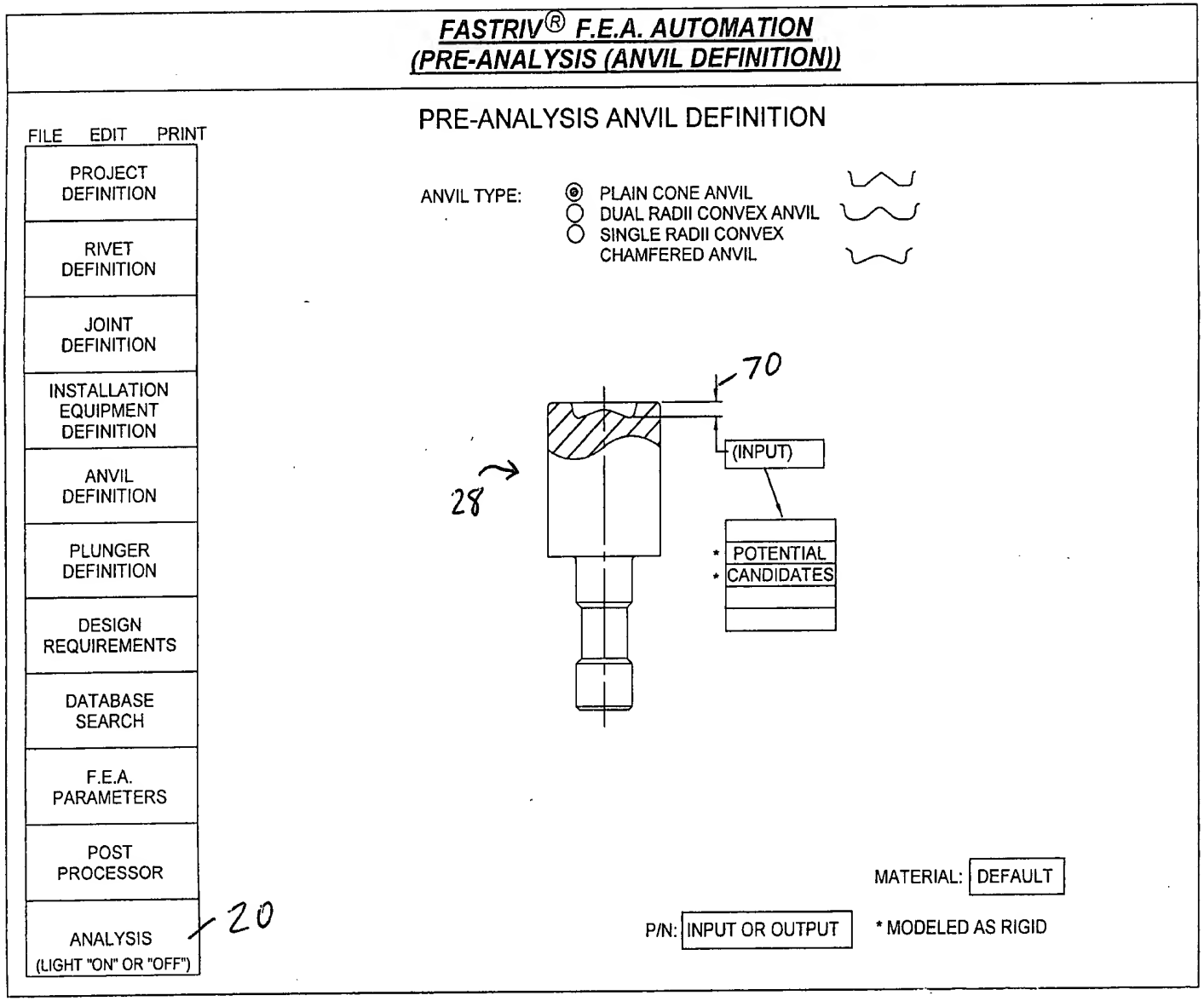
FASTRIV® F.E.A. AUTOMATION
(PRE-ANALYSIS (ANVIL DEFINITION))
PRE-ANALYSIS ANVIL DEFINITION
FILE EDIT PRINT
PROJECT DEFINITION
RIVET DEFINITION
JOINT DEFINITION
INSTALLATION EQUIPMENT DEFINITION
ANVIL DEFINITION
PLUNGER DEFINITION
DESIGN REQUIREMENTS
DATABASE SEARCH
F.E.A. PARAMETERS
POST PROCESSOR
ANALYSIS
(LIGHT "ON" OR "OFF")
20
ANVIL TYPE:
PLAIN CONE ANVIL
DUAL RADII CONVEX ANVIL
SINGLE RADII CONVEX CHAMFERED ANVIL
70
(INPUT)
28
* POTENTIAL
* CANDIDATES
MATERIAL: DEFAULT
P/N: INPUT OR OUTPUT
* MODELED AS RIGID

FIG. 7

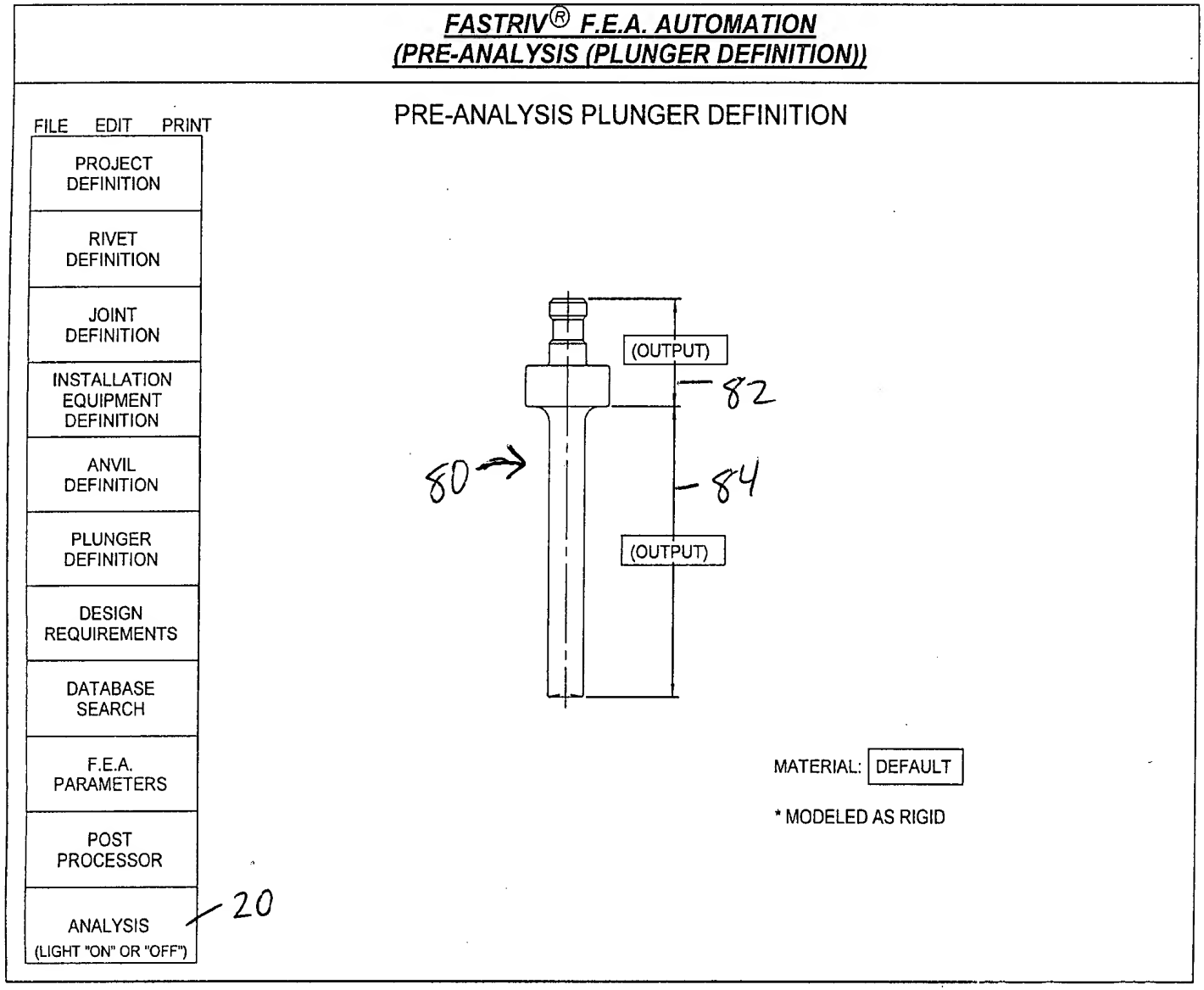

FIG. 8

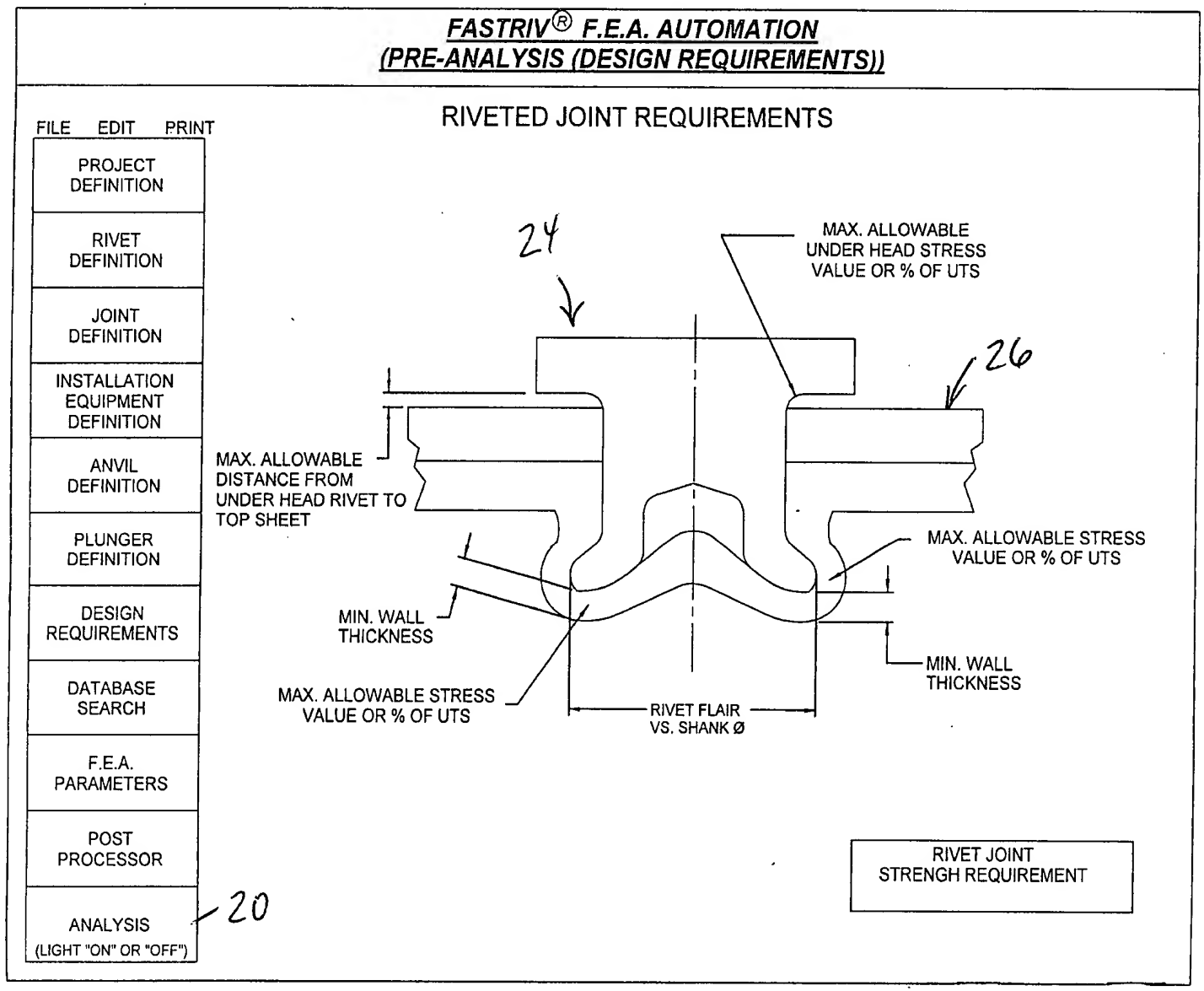
FASTRIV® F.E.A. AUTOMATION
(PRE-ANALYSIS (DESIGN REQUIREMENTS))
RIVETED JOINT REQUIREMENTS
FILE EDIT PRINT
PROJECT DEFINITION
RIVET DEFINITION
JOINT DEFINITION
INSTALLATION EQUIPMENT DEFINITION
ANVIL DEFINITION
PLUNGER DEFINITION
DESIGN REQUIREMENTS
DATABASE SEARCH
F.E.A. PARAMETERS
POST PROCESSOR
ANALYSIS
(LIGHT "ON" OR "OFF")
20
24
26
MAX. ALLOWABLE UNDER HEAD STRESS VALUE OR % OF UTS
MAX. ALLOWABLE DISTANCE FROM UNDER HEAD RIVET TO TOP SHEET
MAX. ALLOWABLE STRESS VALUE OR % OF UTS
MIN. WALL THICKNESS
MIN. WALL THICKNESS
MAX. ALLOWABLE STRESS VALUE OR % OF UTS
RIVET FLAIR VS. SHANK Ø
RIVET JOINT STRENGH REQUIREMENT

FIG. 9

T06280" ST02-h660

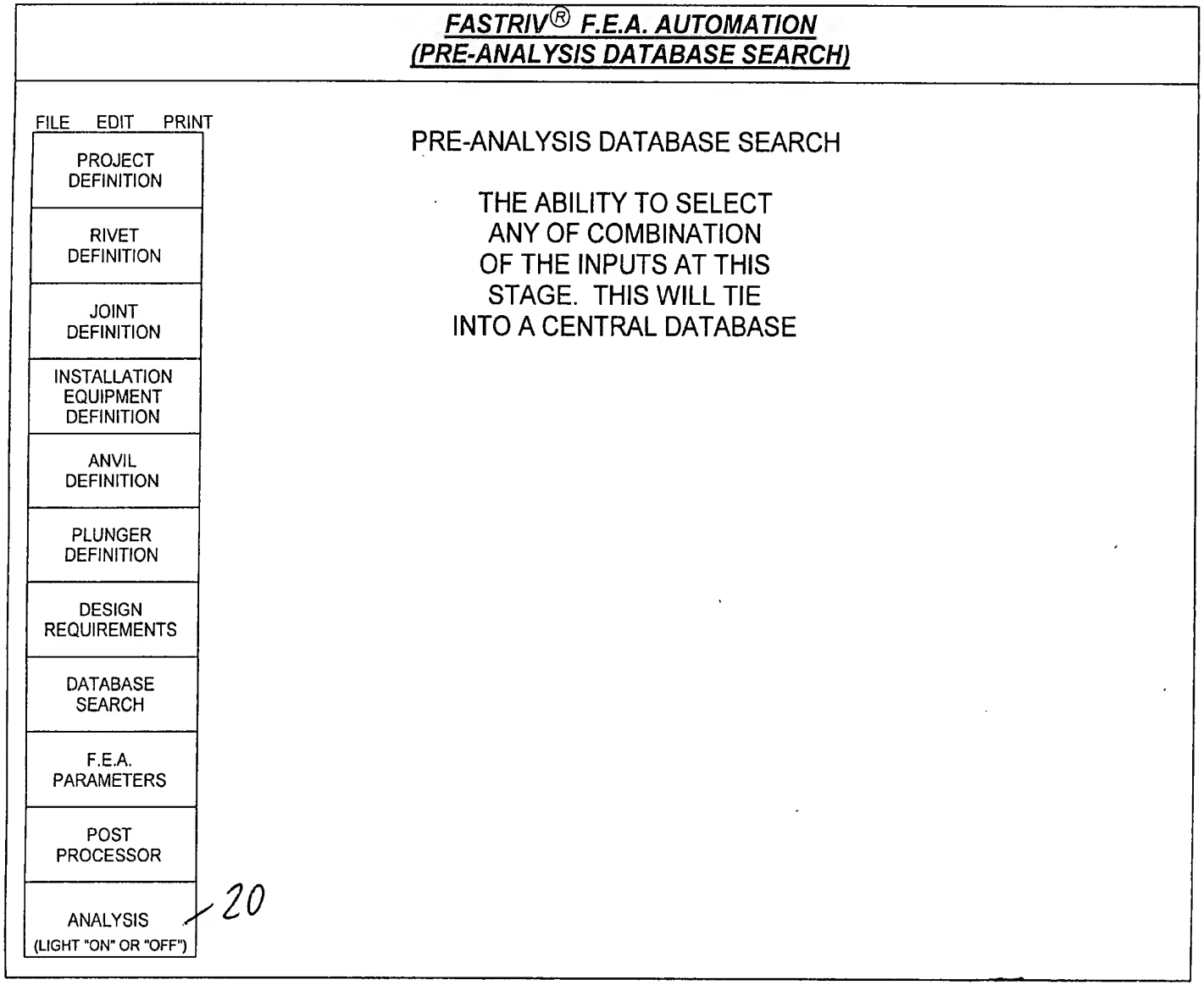

FIG. 10

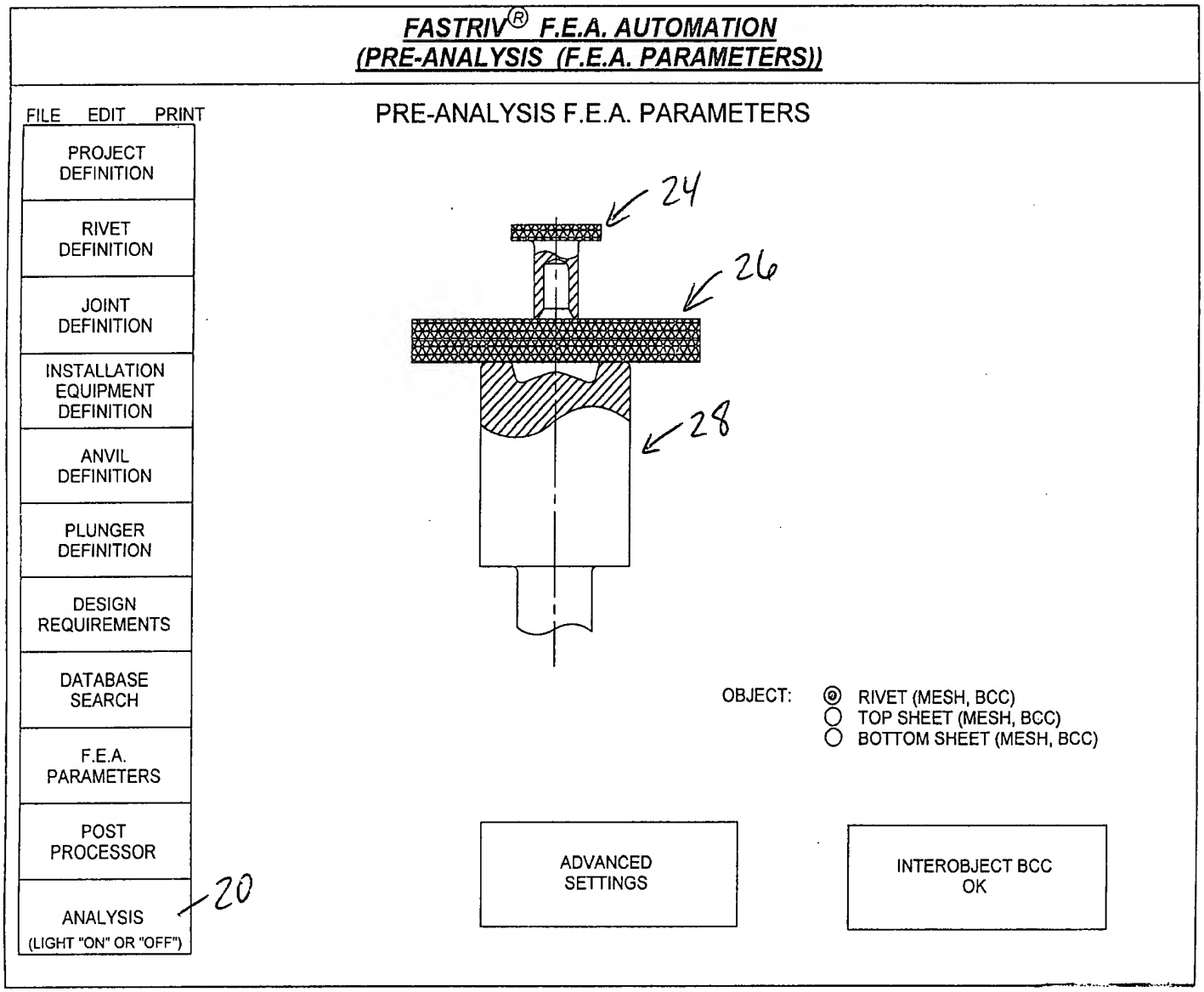
FASTRIV® F.E.A. AUTOMATION
(PRE-ANALYSIS (F.E.A. PARAMETERS))
FILE EDIT PRINT
PRE-ANALYSIS F.E.A. PARAMETERS
PROJECT DEFINITION
RIVET DEFINITION
JOINT DEFINITION
INSTALLATION EQUIPMENT DEFINITION
ANVIL DEFINITION
PLUNGER DEFINITION
DESIGN REQUIREMENTS
DATABASE SEARCH
F.E.A. PARAMETERS
POST PROCESSOR
ANALYSIS
(LIGHT "ON" OR "OFF")
20
24
26
28
OBJECT:
RIVET (MESH, BCC)
TOP SHEET (MESH, BCC)
BOTTOM SHEET (MESH, BCC)
ADVANCED SETTINGS
INTEROBJECT BCC OK

FIG. 11

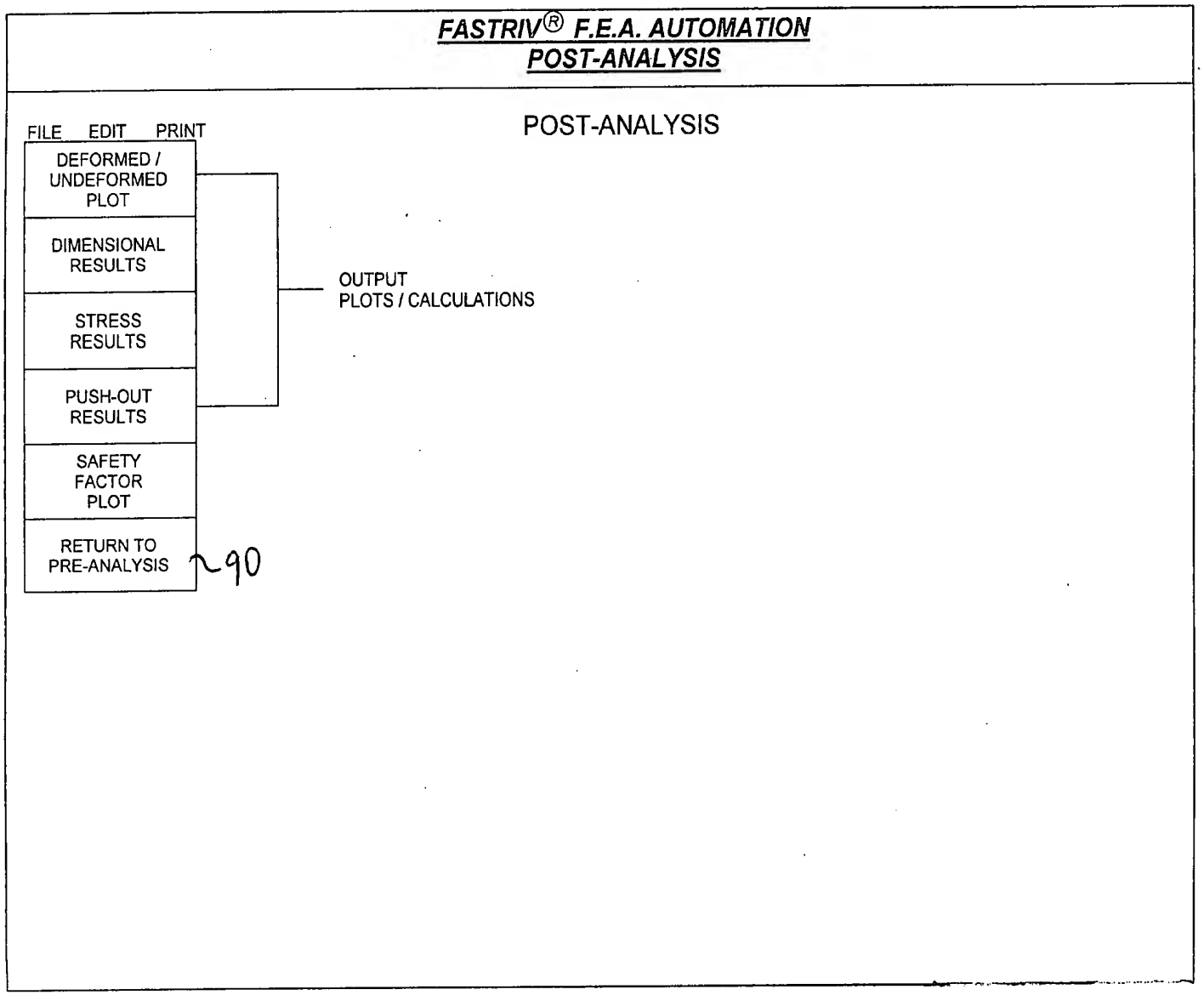

FIG. 12

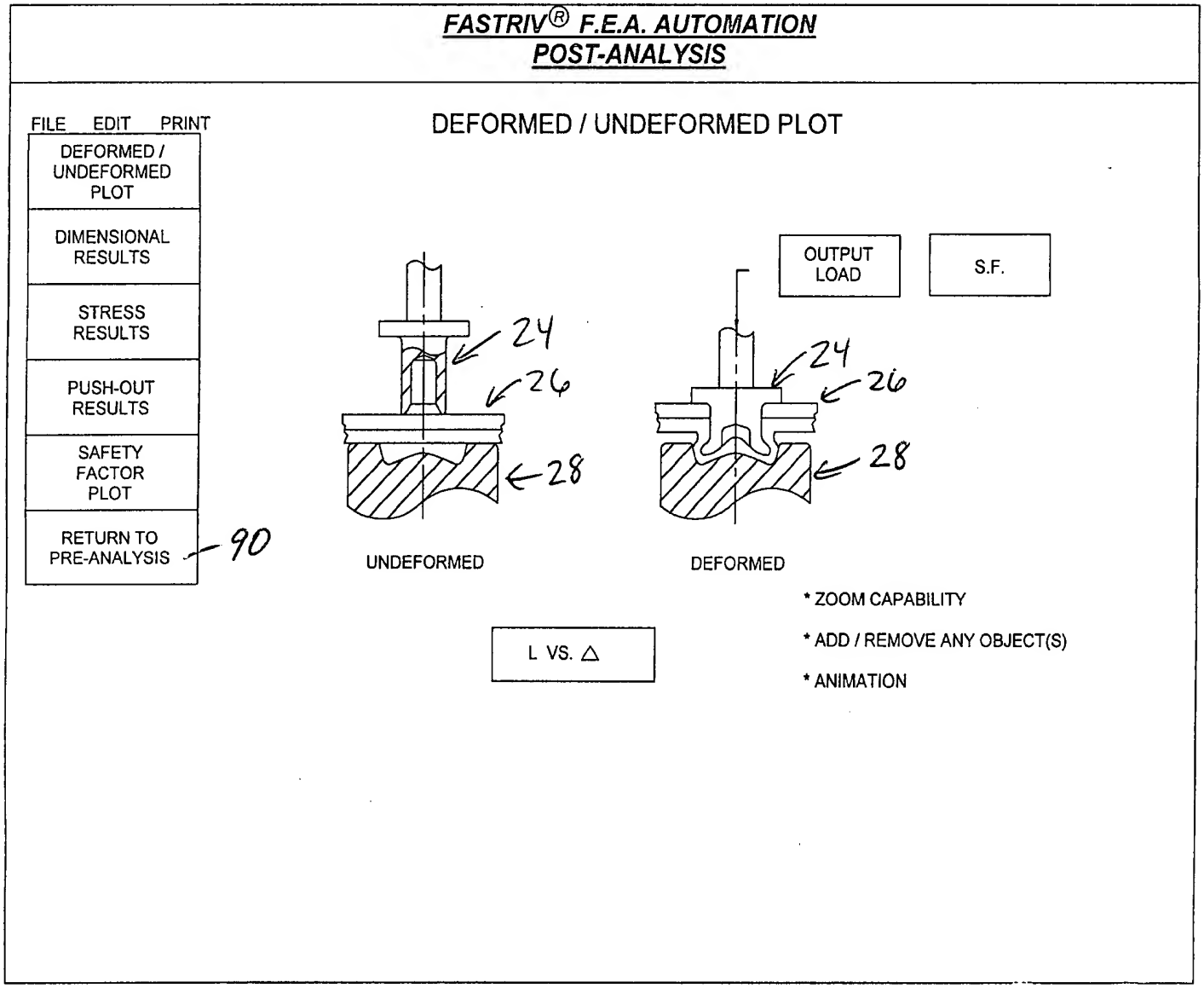
FASTRIV® F.E.A. AUTOMATION
POST-ANALYSIS
FILE EDIT PRINT
DEFORMED / UNDEFORMED PLOT
DIMENSIONAL RESULTS
STRESS RESULTS
PUSH-OUT RESULTS
SAFETY FACTOR PLOT
RETURN TO PRE-ANALYSIS
90
DEFORMED / UNDEFORMED PLOT
24
26
28
UNDEFORMED
24
26
28
DEFORMED
OUTPUT LOAD
S.F.
L VS. Δ
* ZOOM CAPABILITY
* ADD / REMOVE ANY OBJECT(S)
* ANIMATION

FIG. 13

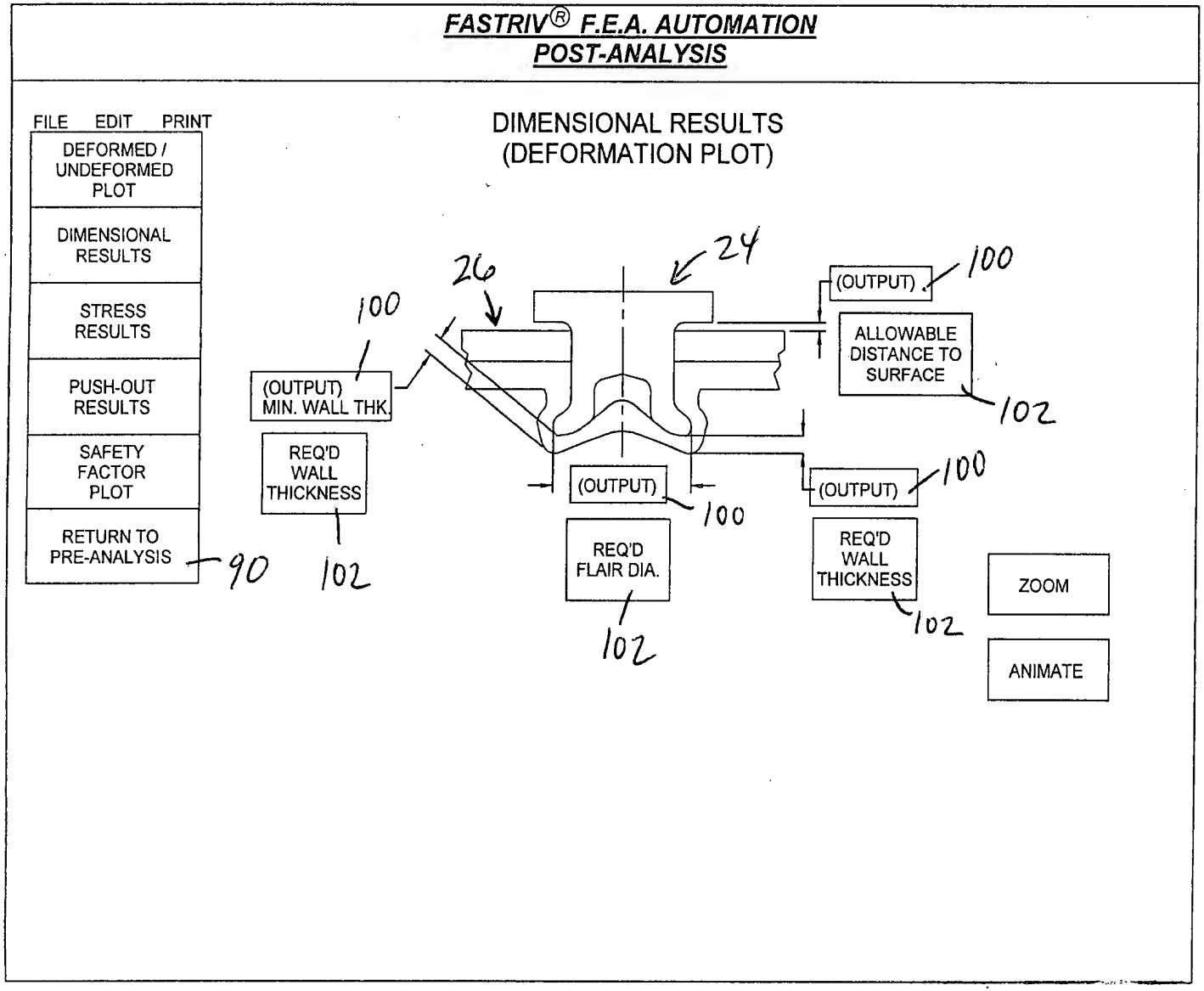
FASTRIV® F.E.A. AUTOMATION
POST-ANALYSIS
FILE EDIT PRINT
DEFORMED / UNDEFORMED PLOT
DIMENSIONAL RESULTS
STRESS RESULTS
PUSH-OUT RESULTS
SAFETY FACTOR PLOT
RETURN TO PRE-ANALYSIS
90
DIMENSIONAL RESULTS
(DEFORMATION PLOT)
24
26
100
(OUTPUT) MIN. WALL THK.
REQ'D WALL THICKNESS
102
(OUTPUT)
100
ALLOWABLE DISTANCE TO SURFACE
102
(OUTPUT)
100
REQ'D FLAIR DIA.
102
(OUTPUT)
100
REQ'D WALL THICKNESS
102
ZOOM
ANIMATE

FIG. 14

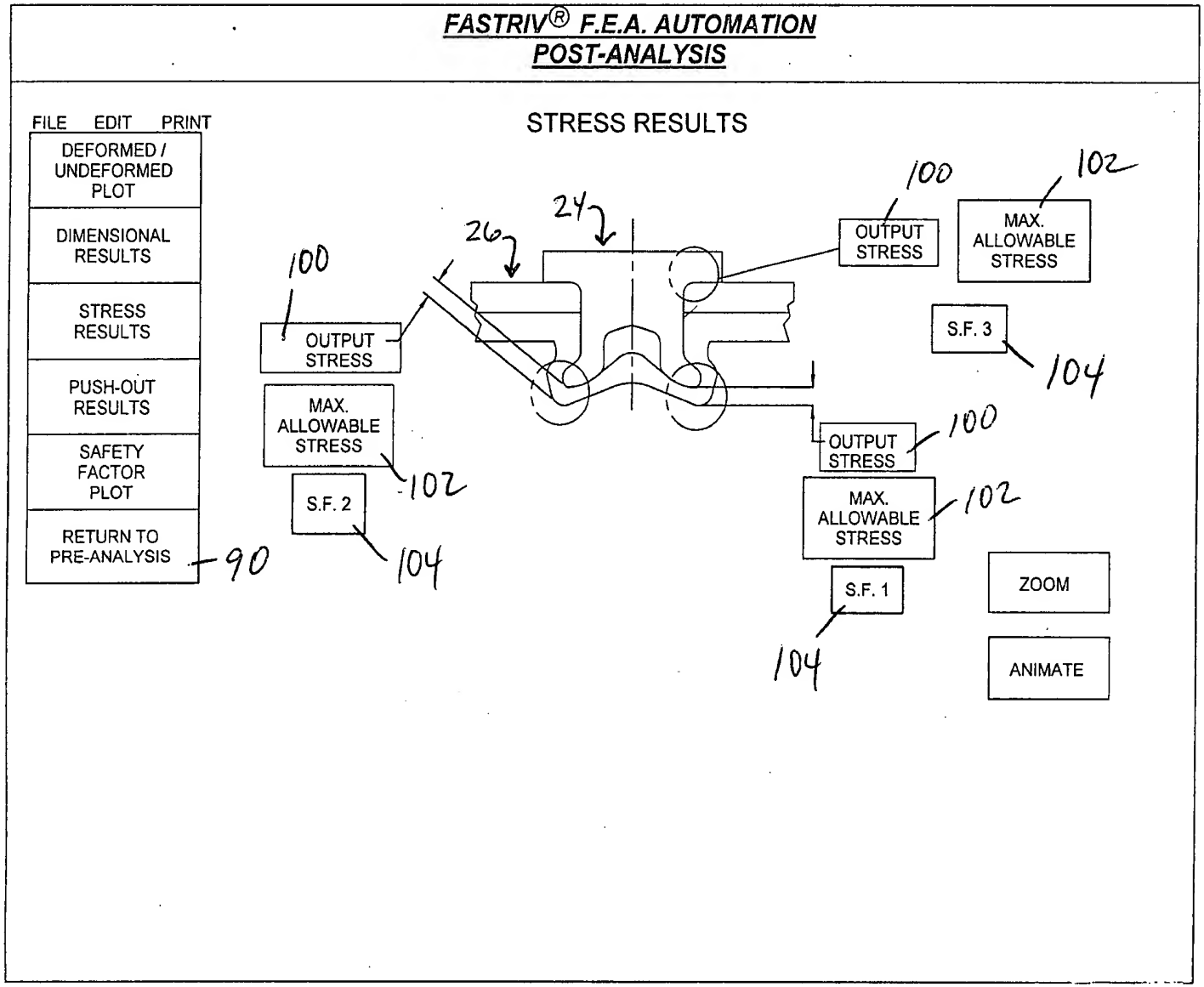
FASTRIV® F.E.A. AUTOMATION
POST-ANALYSIS
FILE EDIT PRINT
DEFORMED / UNDEFORMED PLOT
DIMENSIONAL RESULTS
STRESS RESULTS
PUSH-OUT RESULTS
SAFETY FACTOR PLOT
RETURN TO PRE-ANALYSIS
90
STRESS RESULTS
24
26
100
OUTPUT STRESS
MAX. ALLOWABLE STRESS
102
S.F. 2
104
100
OUTPUT STRESS
MAX. ALLOWABLE STRESS
102
S.F. 3
104
100
OUTPUT STRESS
MAX. ALLOWABLE STRESS
102
S.F. 1
104
ZOOM
ANIMATE

FIG. 15

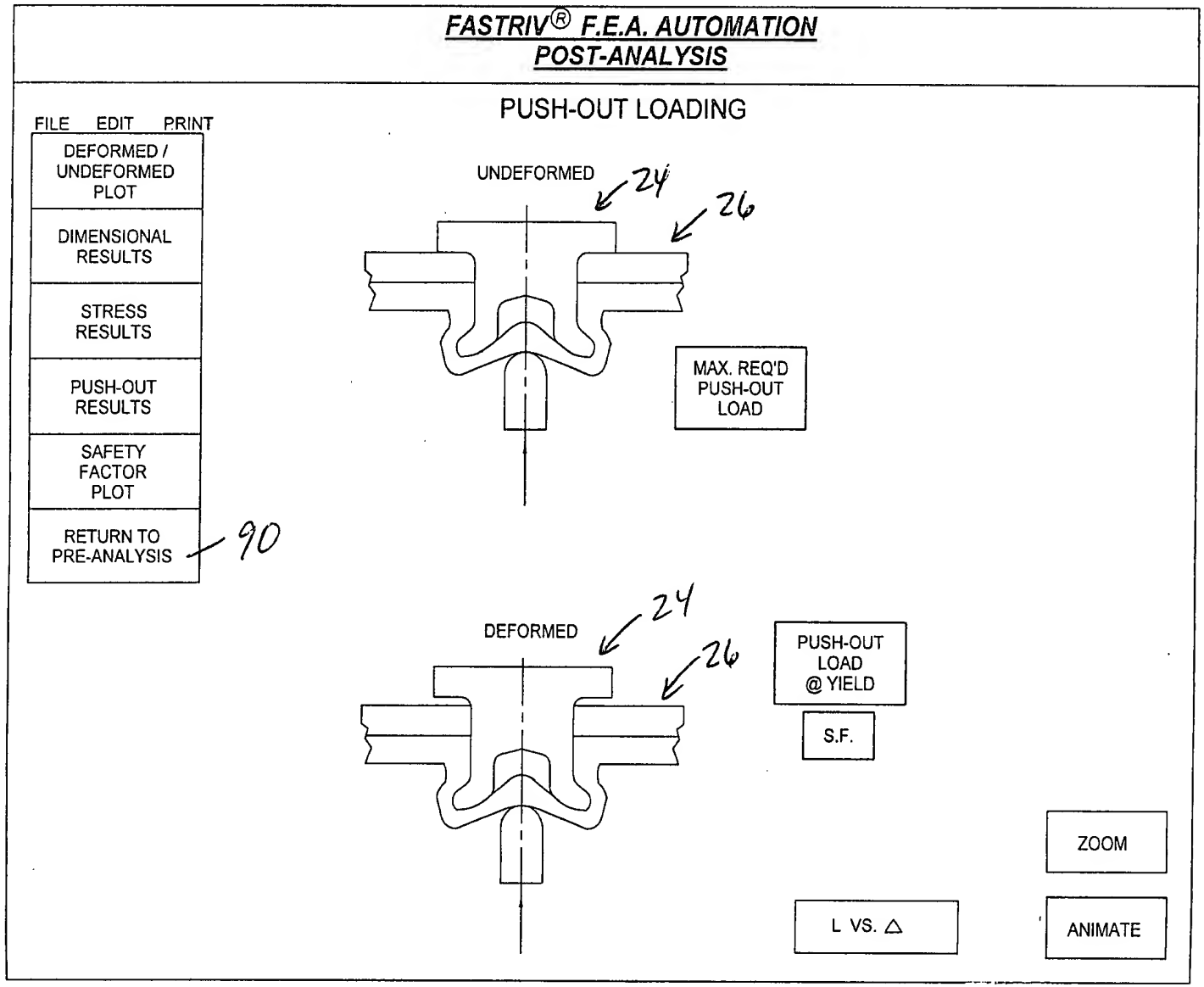
FASTRIV® F.E.A. AUTOMATION
POST-ANALYSIS
PUSH-OUT LOADING
FILE EDIT PRINT
DEFORMED / UNDEFORMED PLOT
DIMENSIONAL RESULTS
STRESS RESULTS
PUSH-OUT RESULTS
SAFETY FACTOR PLOT
RETURN TO PRE-ANALYSIS
90
UNDEFORMED
24
26
MAX. REQ'D PUSH-OUT LOAD
DEFORMED
24
26
PUSH-OUT LOAD @ YIELD
S.F.
ZOOM
L VS. Δ
ANIMATE

FIG. 16

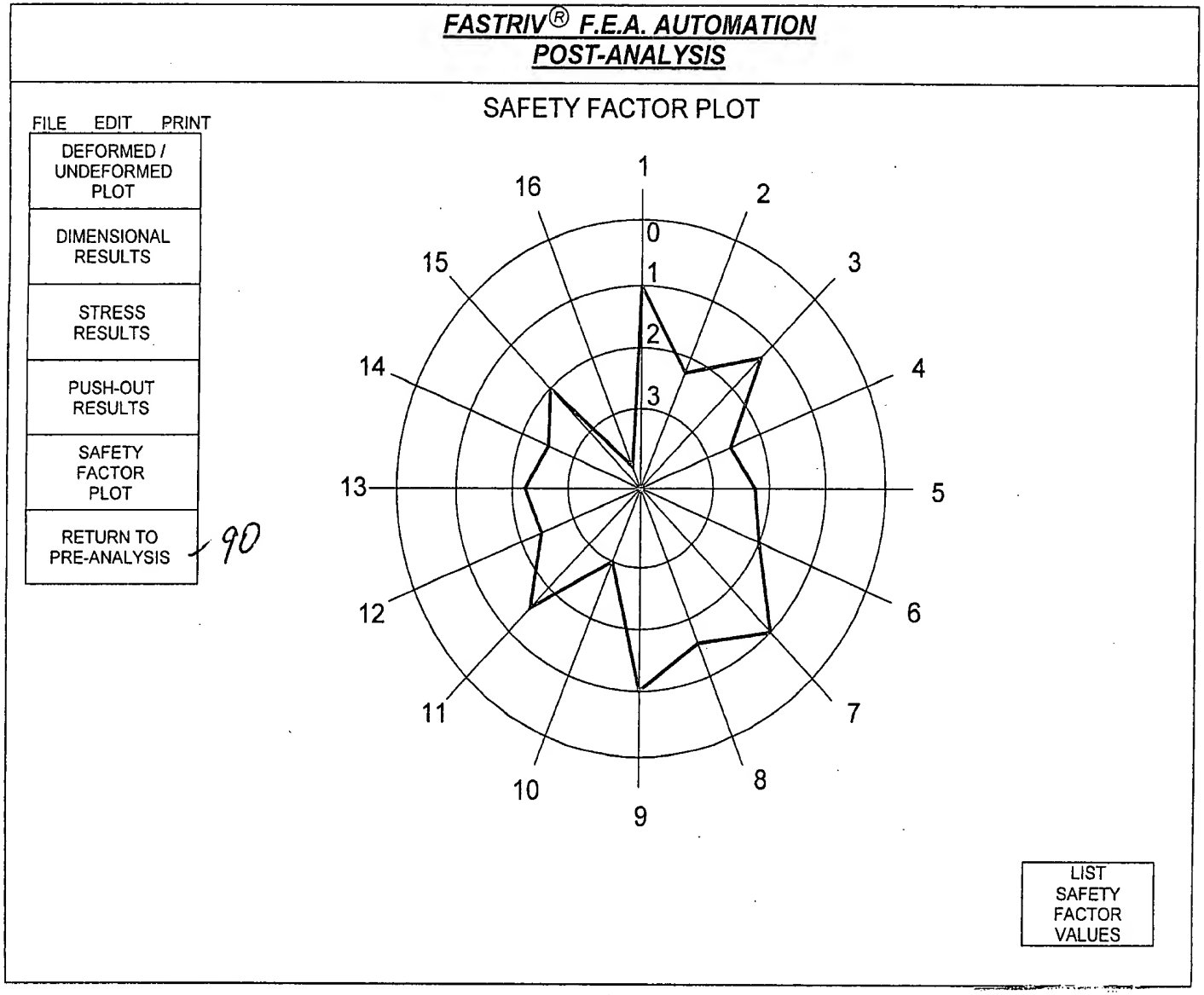
FASTRIV® F.E.A. AUTOMATION
POST-ANALYSIS
FILE EDIT PRINT
DEFORMED / UNDEFORMED PLOT
DIMENSIONAL RESULTS
STRESS RESULTS
PUSH-OUT RESULTS
SAFETY FACTOR PLOT
RETURN TO PRE-ANALYSIS
90
SAFETY FACTOR PLOT
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
0
1
2
3
LIST SAFETY FACTOR VALUES

FIG. 17